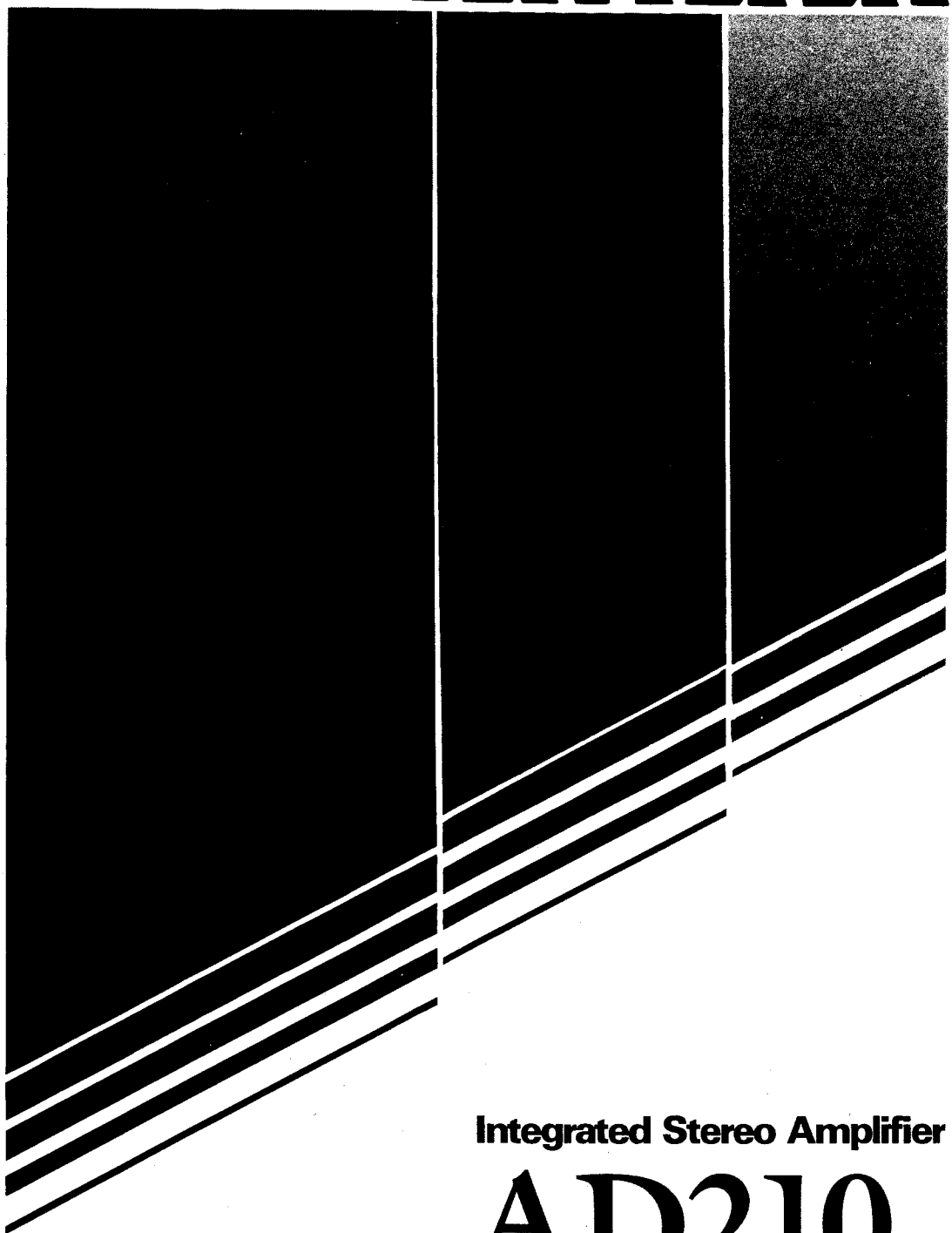
Service manual



Integrated Stereo Amplifier

AD210

CONTENTS

SPECIFICATIONS.....2
PACKING.....3
BLOCK DIAGRAM.....4
TOP VIEW OF P.C BOARDS.....5
PARTS LIST.....6, 7
PARTS LIST ACCORDING TO EXPLODED VIEW.....8, 9
EXPLODED VIEW OF CABINET AND CHASSIS.....10, 11
POINT TO POINT WIRING DIAGRAM.....12, 13
SCHEMATIC DIAGRAM.....14, 15

SPECIFICATIONS

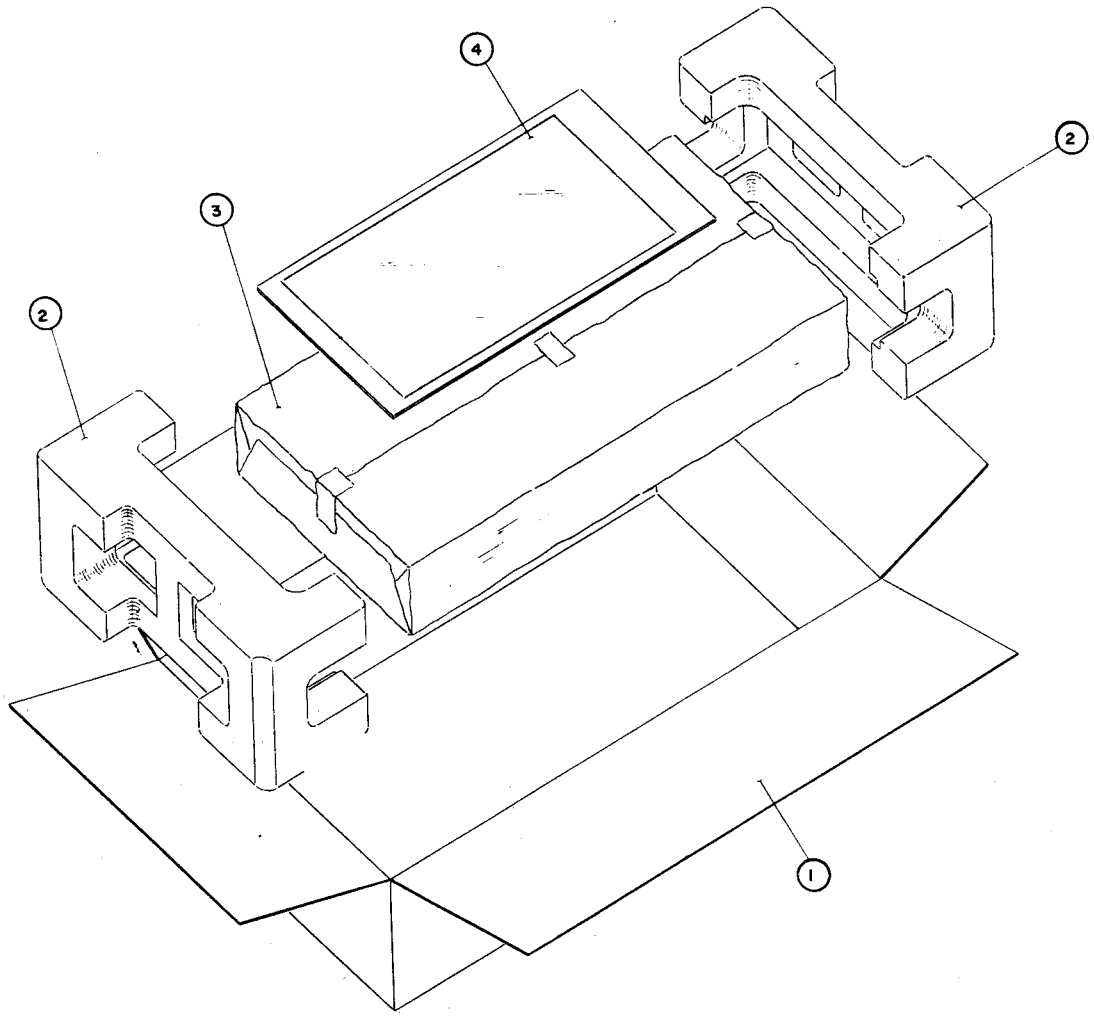
● AMPLIFIER SECTION

POWER OUTPUT, Continuous RMS with no more than 0.5% THD	
at 8 ohms, 1KHz	23W
at 4 ohms, 1KHz	27W
POWER OUTPUT/CH, MIN RMS FROM 40Hz TO 20KHz	
WITH NO MORE THAN 0.5% THD into 8 ohms	20W
INTERMODULATION DISTORTION, 60Hz: 7KHz = 4 : 1 SMPTE	
20W output into 8 ohms	0.3%
DAMPING FACTOR at 1KHz, 8 ohms	45
INPUT SENSITIVITY for 20W output 8 ohms at 1KHz	
Phono	2.5mV
AUX/CD, TUNER	150mV
PHONO PRE-AMP INPUT OVERLOAD at 1KHz, 0.1% THD	160mV
SIGNAL TO NOISE RATIO, IHF "A" wtd/unwtd	
Phono	75/67dB
Tuner/AUX/CD	98/88dB
FREQUENCY RESPONSE Phono, RIAA 30-20,000Hz	±0.5dB
Tuner at 1W, −3dB	6Hz-40KHz
TONE CONTROL Bass at 100Hz, Treble at 10KHz	±10dB
LOUDNESS CONTROL at 100Hz at 10KHz	+7dB/+6dB
CHANNEL SEPARATION at TUNER/TAPE, 1KHz	45dB
10KHz	40dB
POWER CONSUMPTION	70 Watts(MIN 30W, MAX 130W)
UNIT DIMENSIONS(W× H× D)	440× 70× 200mm
UNIT WEIGHTS	3.9Kg

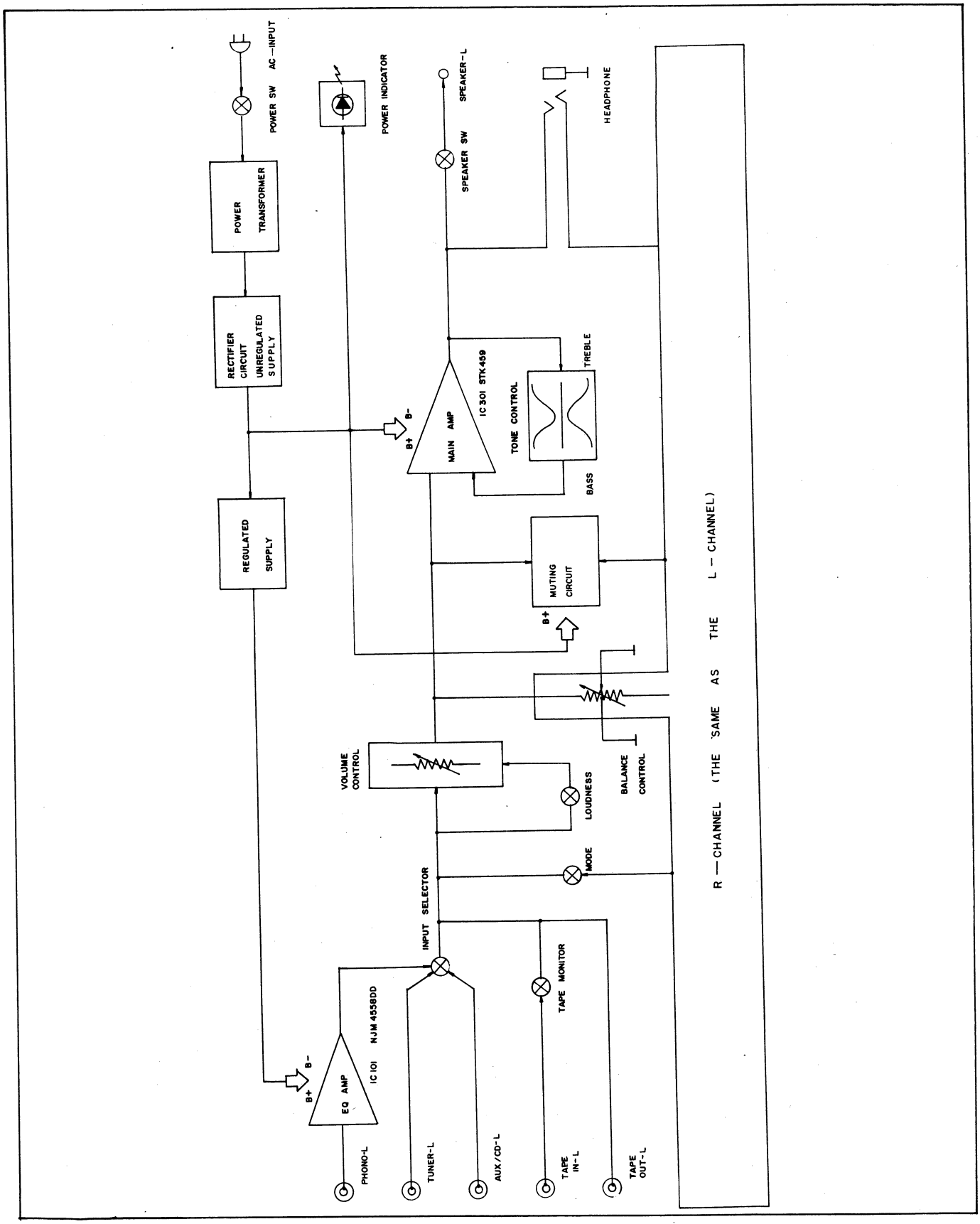
NOTE : Design and specifications subject to change without notice for improvements.

PACKING

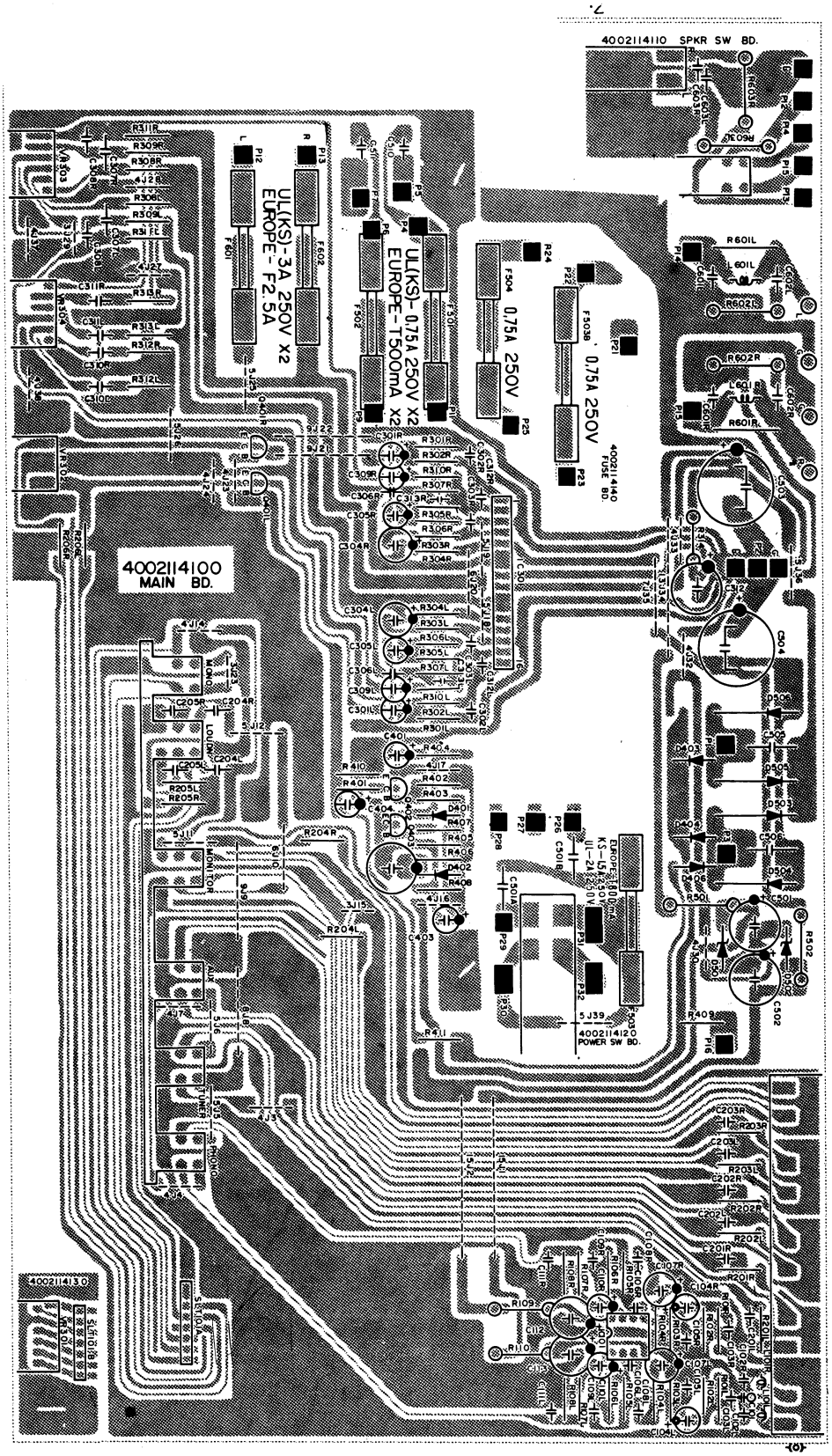
NO.	PARTS NO.	DESCRIPTION
1	049605051102	CARTON BOX
2	9722008210	POLY CUSHION
3	9715000110	FILM SOFT PE
4	9007010361	OPERATING MANUAL



BLOCK DIAGRAM



TOP VIEW OF P.C. BOARDS



PARTS LIST

Ref. No.	Parts No.	Description	Q'ty
MAIN BOARD 4002114100			
IC101	2168220104	IC NJM 4558DD	1
IC301	2178317100	IC STK 459-ST	1
Q401L/R	2008606104	TR KTC 1815Y	2
Q402	2008606105	TR KTA 1015Y	2
Q403			
D401	2058306101	Diode 1N4148	3
D402			
D406			
D403	2058106100	Diode 1N 4002	2
D404			
D501	2058513120	Diode Zener RD18EB1	2
D502			
D503	2058100105	Diode 1N 5402	4
D504			
D505			
D506			
L601L/R	2648001010	Inductor Coil 0.5uH	2
R101L/R	3069102270	Resistor C.F IK ohm $\frac{1}{4}$WJ	14
R201L/R			
R202L/R			
R203L/R			
R204L/R			
R206L/R			
R304L/R			
R102L/R	3069104270	Resistor C.F 100K ohm $\frac{1}{4}$WJ	4
R108L/R			
R103L/R	3069913270	Resistor C.F 91K ohm $\frac{1}{4}$WJ	2
R104L/R	3069821270	Resistor C.F 820 ohm $\frac{1}{4}$WJ	4
R312L/R			
R105L/R	3069433270	Resistor C.F 43K ohm $\frac{1}{4}$WJ	2
R106L/R	3069564270	Resistor C.F 560K ohm $\frac{1}{4}$WJ	2
R107L/R	3069471270	Resistor C.F 470 ohm $\frac{1}{4}$WJ	2
R109	3069101270	Resistor C.F 100 ohm $\frac{1}{4}$WJ	2
R110			
R205L/R	3069123270	Resistor C.F 12K ohm $\frac{1}{4}$WJ	2
R301L/R	3069154270	Resistor C.F 150K ohm $\frac{1}{4}$WJ	4
R306L/R			
R302L/R	3069222270	Resistor C.F 2.2K ohm $\frac{1}{4}$WJ	4
R401			
R407			
R303L/R	3069332270	Resistor C.F 3.3K ohm $\frac{1}{4}$WJ	7
R305L/R			
R308L/R			
R409			
R307L/R	3069473270	Resistor C.F 47K ohm $\frac{1}{4}$WJ	4
R310L/R			
R309L/R	3069153270	Resistor C.F 15K ohm $\frac{1}{4}$WJ	3
R405			
R311L/R	3069184270	Resistor C.F 180K ohm $\frac{1}{4}$WJ	2
R313L/R	3069152270	Resistor C.F 1.5K ohm $\frac{1}{4}$WJ	2
R314	3069100270	Resistor C.F 10 ohm $\frac{1}{4}$WJ	1
R402	3069823270	Resistor C.F 82K ohm $\frac{1}{4}$WJ	1

Ref. No.	Parts No.	Description	Q'ty
R403	3069103270	Resistor C.F 10K ohm $\frac{1}{4}$WJ	2
R408			
R404	3069470270	Resistor C.F 47 ohm $\frac{1}{4}$WJ	1
R406	3069472270	Resistor C.F 4.7K ohm $\frac{1}{4}$WJ	1
R410	3069224270	Resistor C.F 220K ohm $\frac{1}{4}$WJ	1
R411	3069105270	Resistor C.F M ohm $\frac{1}{4}$WJ	1
R501	3039561472	Resistor M.O 560 ohm 1WJ	2
R502			
R601L/R	3039100372	Resistor M.O 10 ohm $\frac{1}{2}$WJ	4
R602L/R			
C101	3509473530	Cap Ceramic 0.047uF/50WV	6
C510			
C511			
C512			
C602L/R			
C103L/R	3509680130	Cap Ceramic 68pF/50WV	2
C104L/R	3409247971	Cap E AF RSA 4.7uF/50WV	3
C401			
C105L/R	3509100030	Cap Ceramic 10pF/50WV	2
C106L/R	3509222530	Cap Ceramic 2200pF 50WV	2
C107L/R	3409247011	Cap E AF RSA 47uF/6.3WV	2
C108L/R	3609182120	Cap Mylar 0.0018uF/100WV	2
C109L/R	3609562120	Cap Mylar 0.0056uF/100WV	2
C110L/R	3409222871	Cap E AF RSA 0.22uF/50WV	2
C111L/R	3609152120	Cap Mylar 0.0015uF/100WV	2
C112	3409210131	Cap E AF RSA 100uF/16WV	2
C113			
C204L/R	3509181130	Cap Ceramic 180pF/50WV	2
C205L/R	3609153120	Cap Mylar 0.056uF/100WV	2
C301L/R	3409222971	Cap E AF RSA 2.2uF/50WV	2
C302L/R	3509101130	Cap Ceramic 100PF/50WV	4
C312L/R			
C303L/R	3509109030	Cap Ceramic 1pF/50WV	2
C304L/R	3409222061	Cap E AF RSA 22uF/35WV	2
C305L/R	3409222031	Cap E AF RSA 22uF/16WV	2
C306L/R	3509120030	Cap Ceramic 12pF/50WV	2
C307L/R	3609683120	Cap Mylar 0.068uF/100WV	2
C308L/R	3609153120	Cap Mylar 0.015uF/100WV	2
C309L/R	3509100030	Cap E AF RSA 10uF/50WV	4
C403			
C404			
C310L/R	3609223120	Cap Mylar 0.022uF/100WV	2
C311L/R	3609472120	Cap Mylar 0.0047uF/100WV	2
C312	3409222161	Cap E AF RSA 220uF/35WV	2
C402			
C313L/R	3509509030	Cap Ceramic 5pF/50WV	2
C501	3409222141	Cap E AF RSA 220uF/25WV	2
C502			
C503	3419533214	Cap E AF RSA 3300uF/35WV	2
C504			
C505	3609334130	Cap Mylar 0.33uF/150WV	2
C506			
F501 F502 F503B	5508211831	Fuse 0.75A/250V For UL	3

PARTS LIST

Ref. No.	Parts No.	Description	Q'ty
F601 F602	5508301634	Fuse T500mA/250V For EUROPE	3
	5508212631	Fuse 3A/250V For UL	2
	5508402534	Fuse F2.5A /250V For EUROPE	2
SPKR SW B'D 4002114110			
R603L/R	3039271472	Resistor M.O 270 ohm 1W	2
POWER SW B'D 4002114120			
C507	3549472407	Cap Ceramic 0.0047uF/400VAC	1
F503	5508212431	Fuse 2A/250V For UL	1
	5508301934	Fuse T800mA/250V For EUROPE	1
CHASSIS MTG			
D405	2308220111	LED SLBI5UR 3RD	1
	2828035302	Power Transformer	1
ADDITIONAL PARTS LIST			
This additional parts list are applicable to the FTZ Version.			
L101L/R	2648601470	Coil Induction 50μM	2
C102L/R		Cap Ceramic 22pF/50WV	2
C201L/R	3509331130	Cap Ceramic 330pF/50WV	6
C202L/R			
C203L/R			
C601L/R	3509102130	Cap Ceramic 1000pF/50WV	2
C603L/R	3509561130	Cap Ceramic 560pF/50WV	2

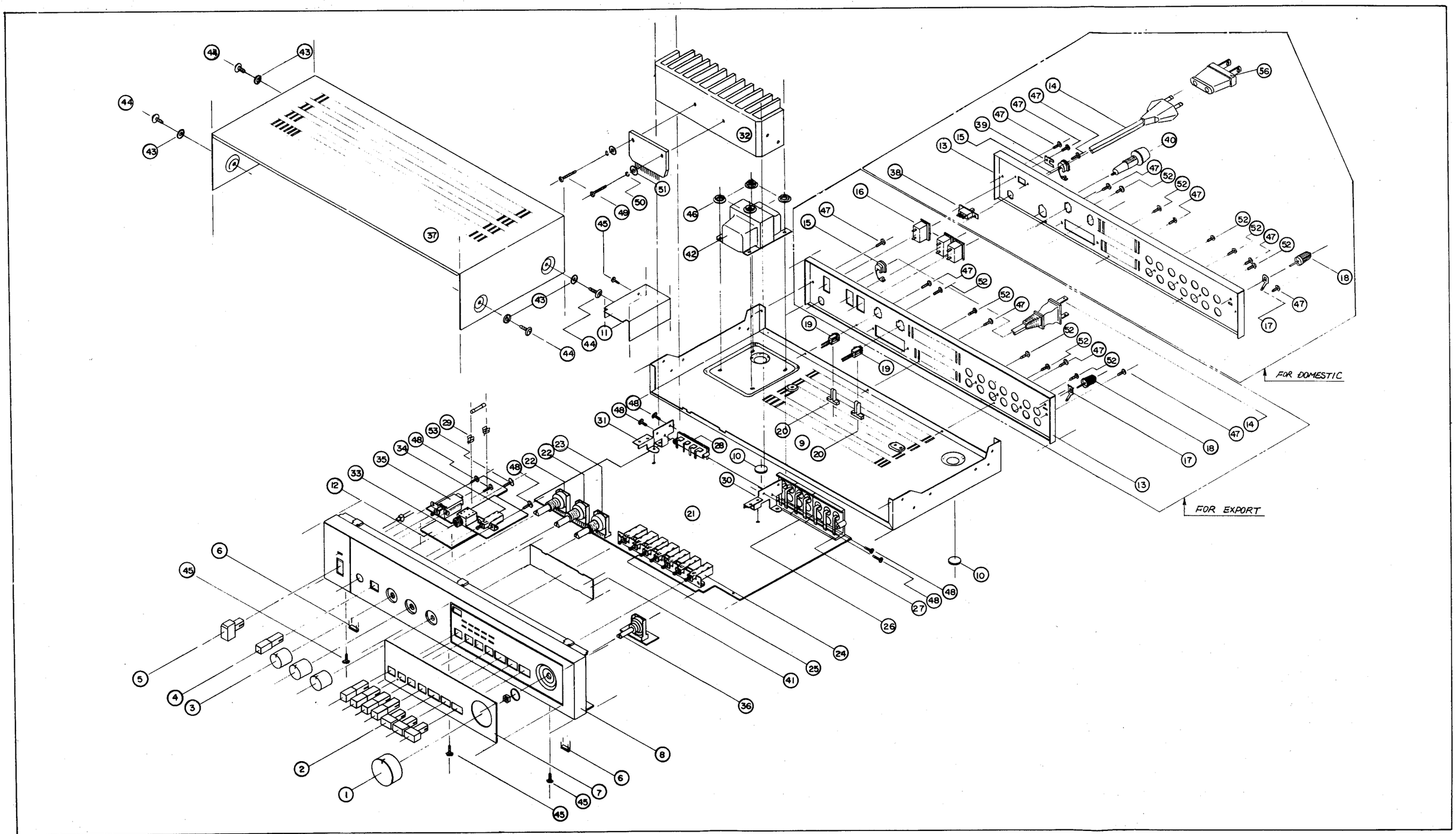
PARTS LIST ACCORDING TO EXPLODED VIEW

NO.	PARTS NO.	DESCRIPTION	Q'TY	REMARKS
1	048543003611	KNOB ROTARY	1	FOR USA(AD-210)
				FOR EUROPE
	048543003612	KNOB ROTARY	1	FOR USA(AD-210B), CANADA
2	048543003311	BUTTON PUSH	3	FOR USA(AD-210),
				FOR EUROPE
	048543003312	BUTTON PUSH	3	FOR USA(AD-210B), CANADA
3	048545013911	KNOB ROTARY	3	FOR USA(AD-210),
				FOR EUROPE
	048545013912	KNOB ROTARY	3	FOR USA(AD-210B), CANADA
4	048543003411	BUTTON PUSH	4	FOR USA(AD-210),
				FOR EUROPE
	048543003412	BUTTON PUSH	4	FOR USA(AD-210B), CANADA
5	048543003211	BUTTON PUSH	1	FOR USA(AD-210),
				FOR EUROPE
	048543003212	BUTTON PUSH	1	FOR USA(AD-210B), CANADA
6	6725000810	CUSHION FOOT	2	
7	048533001011	PLATE NAME	1	FOR USA(AD-210),
				FOR EUROPE
	048533001013	PLATE NAME	1	FOR USA(AD-210B), CANADA
8	048501001811	PANEL FRONT	1	FOR USA(AD-210),
	048501001812	PANEL FRONT	1	FOR EUROPE
	048501001815	PANEL FRONT	1	FOR USA(AD-210B), CANADA
9	6122609310	CHASSIS MAIN	1	
10	6725000910	CUSHION FOOT	2	
11	4835004410	COVER INSULATION	1	
12	4805000210	PLATE FIBER	1	
13	046102013811	CHASSIS BACK	1	FOR EUROPE
	046102013812	CHASSIS BACK	1	FOR USA(AD-210)
	046102013813	CHASSIS BACK	1	FOR DOMESTIC
	046102013815	CHASSIS BACK	1	FOR USA(AD-210B)
14	4308000220	CORD AC POWER	1	FOR USA(AD-210, AD-210B)
	4308000430	CORD AC POWER	1	FOR EUROPE
	4308000810	CORD AC POWER	1	FOR DOMESTIC
15	6518000111	STOPPER CORD	1	FOR USA, EUROPE
	6513000310	STOPPER CORD	1	FOR DOMESTIC
16	4448100210	OUTLET AC	1	FOR USA(AD-210, AD-210B)
17	4465100110	TERMINAL GND	1	
18	4465100210	TERMINAL SCREW	1	
19	4448101010	SOCKET POWER SUPPLY	3	FOR USA, EUROPE
20	6745000410	STOPPER AC SUPPLY	3	FOR USA, EUROPE

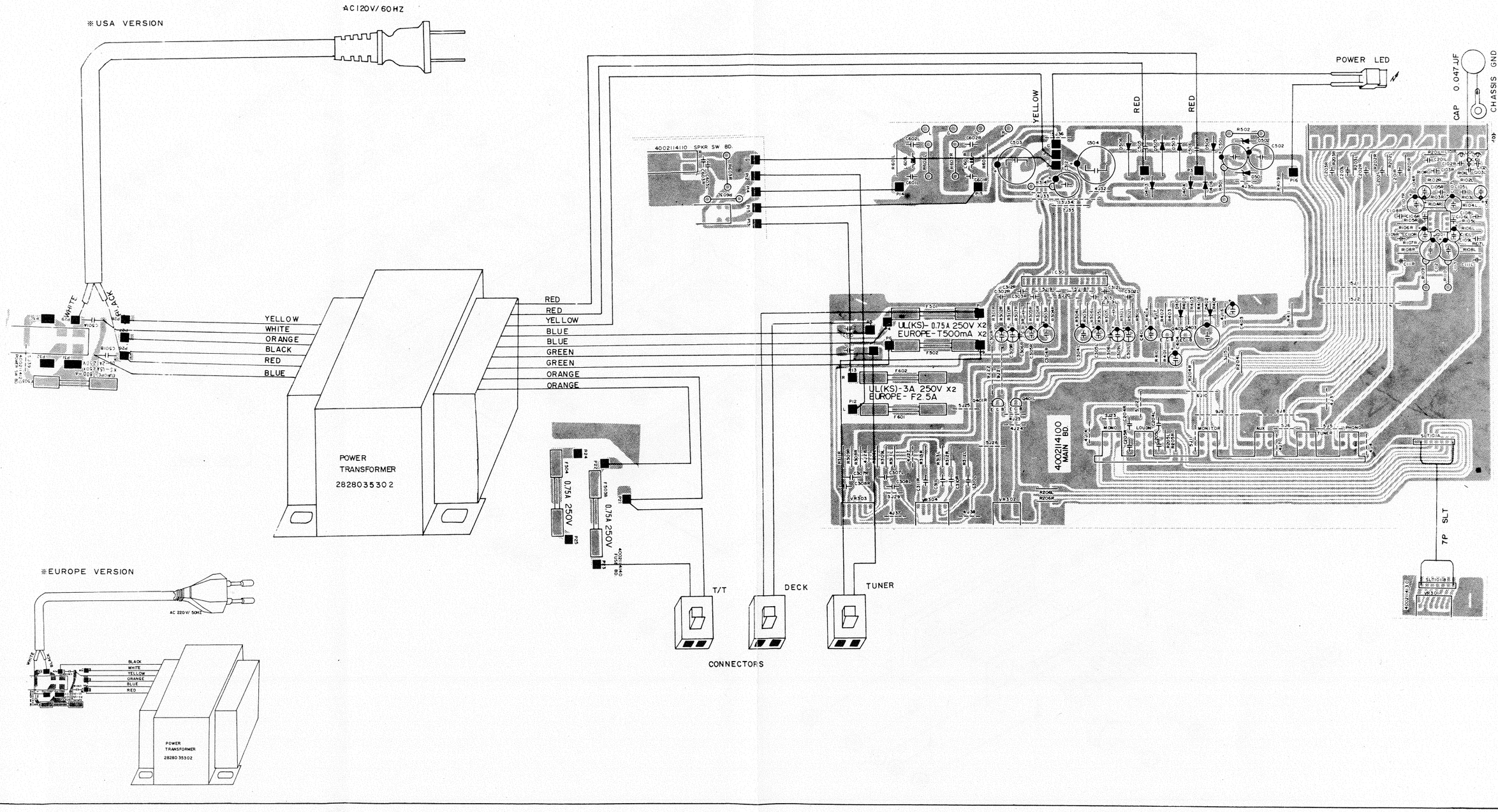
PARTS LIST ACCORDING TO EXPLODED VIEW

NO.	PARTS NO.	DESCRIPTION	Q'TY	REMARKS
21	4002114100	PCB MAIN	1	
22	3228010320	VR ϕ16 100KC×2	2	
23	3228010330	VR ϕ16 LMSW×1	1	
24	4628034510	SWITCH PUSH	1	
25	4628034610	SWITCH PUSH	1	
26	4438100410	JACK RCA(4P)	1	
27	4438100510	JACK RCA(6P)	1	
28	4408000910	TERMINAL PUSH	1	
29	4255000410	CLIP FUSE	8	
30	6505053210	BKT H/SINK(R)	1	
31	6505053220	BKT H/SINK(L)	1	
32	7503004410	H/SINK POWER	1	
33	4438000810	JACK PHONE	1	
34	4628034310	SWITCH PUSH	1	
35	4628034910	SWITCH PUSH	1	
36	3228010410	VR 250KB×2 K20	1	
37	046122007911	COVER TOP	1	FOR USA(AD-210),
				FOR EUROPE
	046122007914	COVER TOP	1	FOR USA(AD-210B), CANADA
38	4618000410	SWITCH VOLTAGE	1	ONLY DOMESTIC
39	6515000630	HOLDER VOLTAGE	1	ONLY DOMESTIC
40	4458000220	HOLDER FUSE	1	ONLY DOMESTIC
41	4002114240	PCB LED	1	
42	2828035302	TRANSFORMER	1	
43	8305000510	WASHER VINYL	4	
44	8159440084	SCREW WSAM 4×8N	4	FOR USA(AD-210),
				FOR EUROPE
	8159440083	SCREW WSAM 4×8B	4	FOR USA(AD-210B), CANADA
45	8109330081	SCREW #3 BTC 3×8Y	3	
46	8209540011	NUT FLANGE M4Y	4	
47	8119330063	SCREW #3 PTC 3×6B	7	
48	8109230081	SCREW #2 BTC 3×8Y	8	
49	8019130181	SCREW PM 3×18Y	2	
50	8309030011	WASHER PLAIN ϕ3Y	2	
51	8319130011	WASHER SPRING ϕ3Y	2	
52	0119230083	SCREW #2 PTC 3×8B	4	
53	8159230081	SCREW #2 WPTC 3×8Y	3	
54	8069140101	SCREW WPM 4×10Y	4	
55	8109230061	SCREW #2 BTC 3×6Y	5	

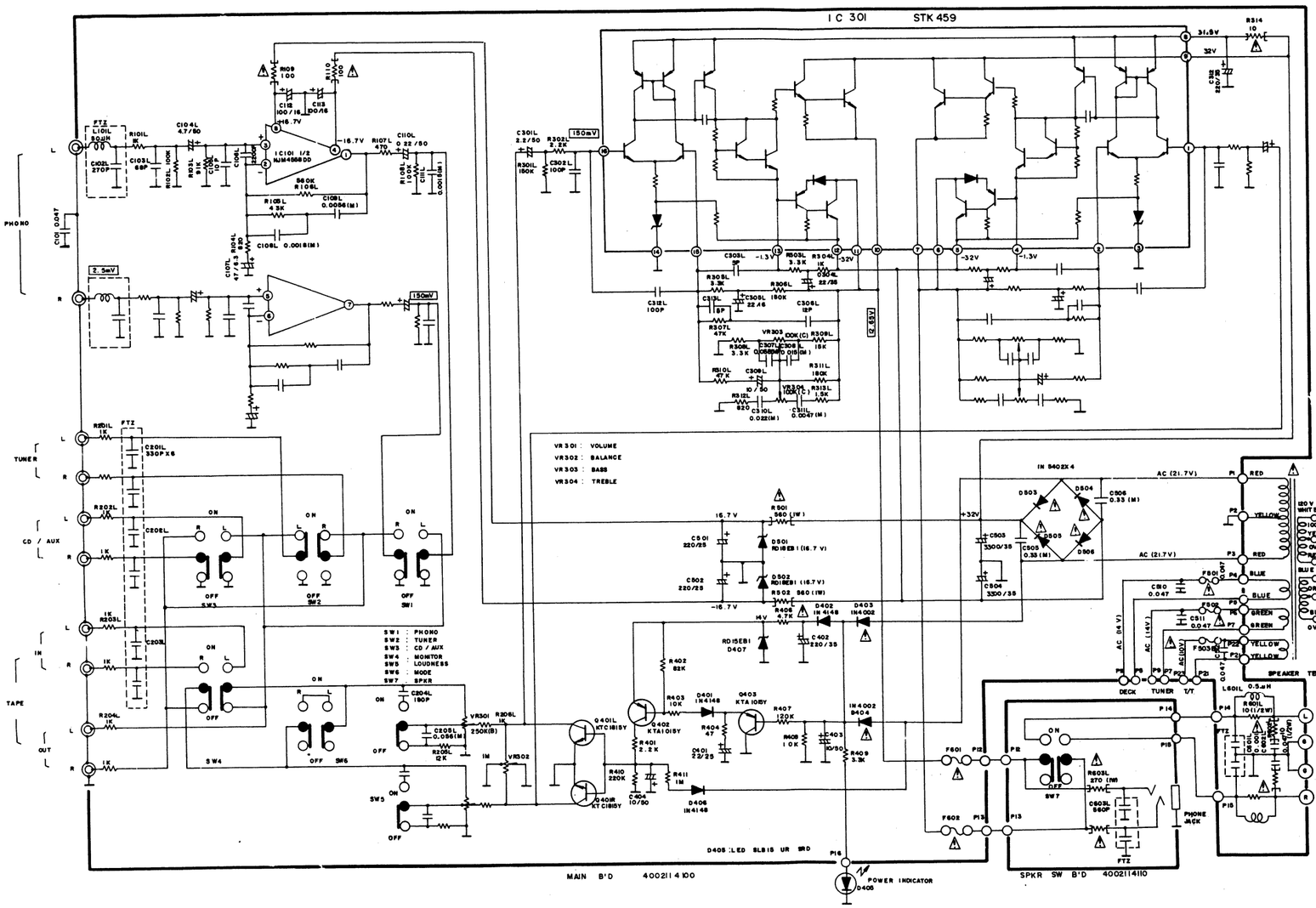
EXPLODED VIEW OF CABINET AND CHASSIS

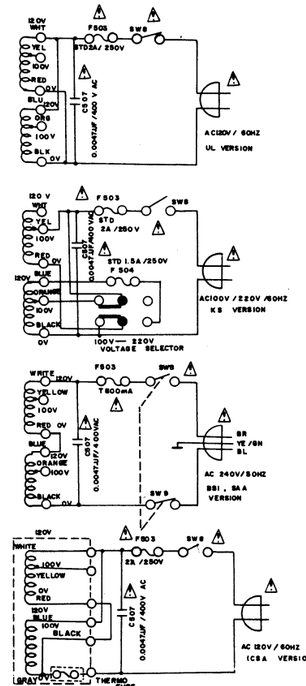


POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM





	UL VERSION	EUROPE VERSION
F501 F502 F5038	0.75A/ 250V	T500mA/ 250V
F503	2A /250V	T800mA/ 250V
F601 F602	3A /250V	F2.5A /250V

※ SERVICE INFORMATION

[PRECAUTIONS]

A) ALL REPLACEMENT COMPONENTS IDENTIFIED BY ⚠ MUST BE REPLACED ONLY WITH ORIGINAL TYPE SPECIFIED BY THE MANUFACTURER AND INSTALLED AS THE ORIGINAL, WITH SPACERS AND POSITIONED AWAY FROM ADJACENT COMPONENTS WHERE APPLICABLE.

B) ALL SOLDERING MUST BE DONE IN A PROFESSIONAL MANNER USING SOLDER WITH RESIN CORE ONLY.

C) ALL COVERS, SHIELDS AND INSULATING SPACERS MUST BE REPLACED BEFORE RETURNING APPLIANCE TO CUSTOMER.

D) A DAMAGED POWER SUPPLY CORD MUST BE REPLACED BEFORE RETURNING APPLIANCE TO CUSTOMER.

E) A DIELECTRIC TEST CONSISTING OF 1080VAC 60HZ IS TO BE APPLIED BETWEEN BOTH BLADES OF THE POWER SUPPLY CORD ATTACHMENT PLUG AND THE EXPOSED CONDUCTIVE SURFACE OF THE APPLIANCE FOR A PERIOD OF NOT LESS THAN ONE SECOND BEFORE RETURNING APPLIANCE TO CUSTOMER.

NOTE

1. RESISTANCE VALUES ARE INDICATED IN OHMS UNLESS OTHERWISE SPECIFIED.
   (K = 1,000 M = 1,000,000)
2. CAPACITANCE VALUES ARE SHOWN IN MICROFARADS UNLESS OTHERWISE NOTED.
   (P = MICRO — MICROFARADS)
3. COMPONENT VALUES ARE SUBJECT TO CHANGE WITHOUT NOTICES.
4. ALL VOLTAGES ARE REFERENCED TO GROUND UNDER THE FOLLOWING CONDITIONS:
   DC: NO SIGNAL EXCEPT WHERE INDICATED
   AC: R M S
5. THE ⚠ MARK FOUND ON SOME COMPONENT PARTS INDICATES THE IMPORTANCE OF THE SAFETY. THEREFORE, WHEN REPLACING, BE SURE TO USE PARTS OF IDENTIAL DESIGNATION.